

R1

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-204534

(43)Date of publication of application : 30.07.1999

(51)Int.Cl.

H01L 21/322

H01L 21/205

(21)Application number : 10-017794

(71)Applicant : SUMITOMO METAL IND LTD

(22)Date of filing : 14.01.1998

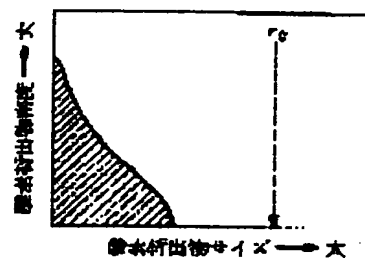
(72)Inventor : IKEDA NAOKI
FUJIKAWA TAKASHI
SUEOKA KOJI

(54) MANUFACTURE OF SILICON EPITAXIAL WAFER

(57)Abstract:

PROBLEM TO BE SOLVED: To display sufficient gettering effect and to achieve low cost, even for a device manufacturing process at low temperature by mirror-surface polishing and finishing, after cutting out a silicon single crystal to a silicon wafer by the specified method, and subjecting it to heat treatment in forming microscopic defects in the inside.

SOLUTION: In a silicon epitaxial wafer, a silicon single crystal, wherein oxygen concentration is controlled to be in the range of $10-18 \times 10^{17}$ atoms/cm³ and carbon concentration is controlled to be in the range of $0.3-2.5 \times 10^{16}$ atoms/cm³, and which is pulled up, is cut out into a silicon wafer. Then, the surface or both surfaces of the silicon single crystal undergo mirror-surface polishing and finishing. Furthermore, the epitaxial film of the silicon is formed on the surface. Hereafter, heat treatment for forming minute defects is performed. Thus, a sufficient oxygen depositing core density is obtained, the density and the size of the minute defect can be controlled in a broad range from the small value to the large value under conditions of the carbon density, the thickness of the silicon epitaxial film and the heat-treating conditions.



(58)LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or